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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/064,676	08/06/2002	Sanjoy Kumar Chowdhury	RD-29438-1	7208

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EXAMINER

WYROZEBSKI LEE, KATARZYNA I

ART UNIT	PAPER NUMBER
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1714

DATE MAILED: 05/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<p align="center">Office Action Summary</p>	Application No. 10/064,676	Applicant(s) CHOWDHURY ET AL.	
	Examiner Katarzyna Wyrozebski Lee	Art Unit 1714	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 27-29 is/are allowed.
- 6) ☒ Claim(s) 1-4, 14-21, 25, 26, 30 and 31 is/are rejected.
- 7) ☒ Claim(s) 5-13 and 22-24 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>1203</u> . | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
6) <input type="checkbox"/> Other: _____. |
|--|---|

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

2. Claims 1-31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 4, 14, 20, 30 and 31 contain multiple occurrences of term “substituted”. Use of term “substituted” renders claims indefinite since it is not clear what exactly the substituents are.

Claim Objections

3. Claims 1-4, 14 are objected to because of the following informalities: In all the claims that the applicants disclose the amount of the carbon atoms in the silane part of the compound, the applicants state that the amount of carbon atoms is “about 3” or “about 2 to about 10” or “about 1 to about 20”. These claims are objected to for the following reasons: The spacer between the silane and sulfonate is not a polymer so the amount of the carbon atoms in the spacer should be specific. In addition the applicants have not defined exactly what “about” means. Appropriate correction is required.

When responding to this office action, the applicants are requested to format their claims so that the chemical formulas are not cut in half. See for example, claims 28 and 20.

Claim Rejections - 35 USC § 102

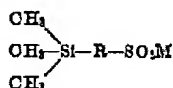
4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-3, 14-21, 25 are rejected under 35 U.S.C. 102(b) as being anticipated by VAN DYKE (US 3,141,898).

The prior art of VAN DYKE discloses compound having following formula:



wherein each R is a divalent linking alkylene radical having from 1 to 12 carbon atoms, and M represents hydrogen when the compounds are sulfonic acids, and M represents a salt-forming cation such as ammonium and metallic ions when the compound is a salt.

Specific examples of M are described in col. 3, lines 22-30, where substituents on nitrogen are methyl groups (tetramethyl).

The compound of VANDYKE was formed by first reacting silane compound to make silane with sulfonate functionality. So formed sulfonate compound is then contacted with solvent in a strongly acidic cation exchange resin solution that would inherently produce free sulfonic acid (col. 3, lines 8-21). The free sulfonic acid is then contacted with quaternary

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ammonium in ethanol solution to form desired compound and forms white. The solvent is then removed and the compound is isolated.

In the first steps of the process the sulfonic acid is in a salt form with cations such as sodium, potassium, calcium, magnesium (col. 1, lines 39-40). The reaction described in VAN DYKE is performed at ambient temperatures, which is approximately 25°C, room temperature. The ammonium compounds contain counter-ions such as hydroxide (col. 3, line 24).

The first solvent utilized in the process of VAN DYKE is water and co-solvent such as methanol can be used as well.

In the light of the above disclosure the prior art of VAN DYKE anticipates requirements of claims rejected above.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

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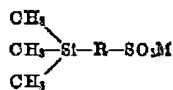
1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 1-3, 14-21, 25, 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over VAN DYKE (US 3,141,898) in view of KLEIN (US 5,430,166).

In the event applicants successfully traverse rejection stated in paragraph 5 of this office action following rejection is stated.

The prior art of VAN DYKE discloses compound having following formula:



wherein each R is a divalent linking alkylene radical having from 1 to 12 carbon atoms, and M represents hydrogen when the compounds are sulfonic acids, and M represents a salt-forming cation such as ammonium and metallic ions when the compound is a salt.

Specific examples of M are described in col. 3, lines 22-30, where substituents on nitrogen are methyl groups (tetramethyl).

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The compound of VANDYKE was formed by first reacting silane compound to make silane with sulfonate functionality. So formed sulfonate compound is then contacted with solvent in a strongly acidic cation exchange resin solution that would intrinsically produce free sulfonic acid (col. 3, lines 8-21). The free sulfonic acid is then contacted with quaternary ammonium in ethanol solution to form desired compound and forms white. The solvent is then removed and the compound is isolated.

In the first steps of the process the sulfonic acid is in a salt form with cations such as sodium, potassium, calcium, magnesium (col. 1, lines 39-40). The reaction described in VAN DYKE is performed at ambient temperatures, which is approximately 25°C, room temperature. The ammonium compounds contain counter-ions such as hydroxide (col. 3, line 24).

The first solvent utilized in the process of VAN DYKE is water and co-solvent such as methanol can be used as well.

The difference between the present invention and the disclosure of VAN DYKE is specific recitation that other substituents on ammonium compound can also be utilized.

With respect to the above argument, the prior art of KLEIN discloses very similar compound to that claimed in the present invention. More specifically compounds in col. 5 disclose n-butyl as substituent on the nitrogen. KLEIN further states that substituents such as isopropyl, triethyl, butyl methyl, methyl, ethyl, propyl groups. The above listed groups are all aliphatic hydrocarbons and are not carrying any functionality. They are therefore functional equivalents.

The prior art of KLEIN also discloses that the above compounds can be utilized as surfactants, which is otherwise well known property of the ammonium salts.

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The aliphatic groups that can be utilized as substituents on the ammonium compounds are functional equivalent.

In the light of the above disclosure, it would have been obvious to one having ordinary skill in the art at the time of the instant invention to utilize other aliphatic substituents on the nitrogen compound and thereby obtain the claimed invention. Using functional equivalents would not affect the properties or the use of the claimed compound.

Allowable Subject Matter

10. Claim 5-13, 22-24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

During the search the compound of the present invention is utilized mainly in liquid solution as surfactant or agent that detects NMR shift. The prior art disclosures do not teach or suggest using such compounds in polymeric compositions.

11. Claims 27-29 are allowed.

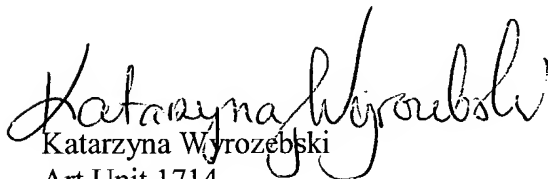
The prior art of record as well as other disclosures found did not teach using phosphonium compounds.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katarzyna Wyrozebski Lee whose telephone number is (571) 272-1127. The examiner can normally be reached on Mon-Thurs 6:30 AM-4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571) 272-1119. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Katarzyna Wyrozebski
Art Unit 1714
April 28, 2004